Brookhaven National Laboratory Five Year Review Comments

October 5, 2021

EPA issued our Protectiveness Statement on August 6th and are following up with these comments on the document. None of the comments should impact the overall protectiveness statements as identified in our Protectiveness Letter and are intended for clarification, to be addressed in an addendum to the Five Year Review document. As noted in our protectiveness letter, the remedies deemed protective are effective for the contaminants in the ROD, but there are new contaminants present (PFAS, 1,4-dioxane) that are being addressed under a different administrative unit (OU VIII). The presence of the new contaminants does not affect short term protectiveness because of the presence of LUCs are preventing human contact. EPA will continue to evaluate protectiveness as these new contaminants have the potential to impact groundwater within other OUs.

General Comments

Protectiveness Statements: EPA refers BNL to our guidance on protectiveness statements, *Clarifying the Use of Protectiveness Determinations for Comprehensive Environmental Response, Compensation and Liability Act Five-Year Reviews (OSWER 9200.2-111)*. "Expected to be protective" is usually reserved for sites that are in construction. If they are not in construction, then protective or short-term protective are typically used when there are not significant issues. Sites where institutional controls are not in place, nature and extent has not been defined or additional remedial work needs to happen in the future should generally be considered protective in the short term. EPA considers that because the exposure pathways have been cut off the remedies are protective in the short term. Furthermore, as continued monitoring demonstrates that the remedial goals will be achieved and a remedy gets implemented for OUVIII (PFAS and 1,4-dioxane) it will be protective in the long term.

A comprehensive protectiveness statement is not appropriate at this time, because the entire site is not construction complete.

Due Date: The trigger for this Five Year Review is the date on which EPA signed the last protectiveness letter (8/9/2016) and the next one would be five years from the date we issue our protectiveness letter (8/6/2021), not necessarily when the FYR is issued.

Receptors of Concern: In general, the document does not describe the exposures to specific receptors of concern e.g., indoor worker, outdoor worker, future resident, off-site resident, etc. It would be helpful to include some information on the receptors and how exposures to these individuals were considered in the assessment. A table identifying the specific OU and the receptors would be helpful.

Lead: The document cites the Regional Screening Levels as the basis for a lead level in soil of 400 mg/kg (page 70, and other descriptions on pages 73 and 89 and memo description on page 248) EPA is currently updating the soil lead level as indicated in the document. It is

recommended that the text remove reference to the Regional Screening Levels since these are not regulatory levels. EPA recommends including the following language in Question B regarding lead that outlines current evaluations of lead at Superfund sites and recommends language regarding updates in the next 5 Year review be maintained in the text. A link to the language in Attachment 5 regarding the scientific basis for lead would also be helpful.

> **New Language**: At the time of the ROD, risks associated with exposure to lead in soils were evaluated using a target blood lead level (BLL) of 10 micrograms per deciliter (µg/dL). However, recent toxicological evidence suggests that adverse health effects are associated with lower blood lead levels. To achieve a lead risk reduction goal consistent with recent toxicological findings, EPA Region 2 currently evaluates lead using a target blood lead level of 5 µg/dL, which equates to 200 mg/kg screening level using standard default inputs to the Integrated Exposure Uptake Biokinetic (IEUBK) model to assess exposures to young children. For sites where lead was a COC, there should be a discussion of how the cleanup is still protective considering these lower values. Additionally, for risk evaluations planned for sites to remove LUCs, an evaluation of the data will be needed to ensure that lead would not pose and unacceptable risk if LUCs were removed. Lead will be re-evaluated in future FYRs based on updated toxicity information.

PFAS: OU VIII should not be included in the technical assessment (Qs A&B). There is no ROD or remedy to evaluate for protectiveness. It can be included in future FYRs once the NTCRA has been implemented. However, the other portions of the document that address PFAS are well constructed. EPA suggests more information about impacts beyond BNL property line so it is clear that off-site residential wells are not impacted.

1,4-Dioxane: For 1,4-dioxane, please include a brief description of what might be needed to complete the investigation for this contaminant.

Radiological: Has the Region done Radiological consultations with FFRRO, OSRTI or internal to the Region on this site?

Restoring the aquifer to beneficial use: This should be noted as an RAO in the Decision Documents, but achieving the cleanup goals that were appropriately established for each OU will achieve this.

OU-1 plume: Has the vapor intrusion pathway been investigated (or is there a reason why it would not be of concern) at this operable unit?

OU-3 plume: When the system modification occurred to address other contaminants, was an ESD or RODA completed for the site. Was VI considered at this OU?

Peconic River Fish Tissue: Sediment and surface water samples are below the cleanup values, but the fish tissue could not be sampled due to a low amount of fish collected to perform the analysis. Does BNL plan to attempt fish tissue sampling in the future?

Ecological Risk: Have tiger salamanders been seen in the Wooded Wetlands ore elsewhere on the BNL site?

Specific Comments

Page ii: The document states that sitewide protectiveness must be reserved until all HFBR work is complete. However, short term protective status may be achievable prior to that.

Page iii, OU VIII PFAS: EPA notes that no one on or offsite has been found to be drinking water above the 70ppt level, so protectiveness is not affected for the present.

Section 1 – Introduction: Suggestion to link to EPA's webpage regarding the site (https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.docdata&id=0202841)

Section 2 –Table 2-1: It would be helpful to provide a link to the general homepage for BNL where documents are available listed above.

Page 8, Table 2-2: For TCRA, it is clearer to say "In Design" than "in Remedial Design" since it is not technically a remediation

Page 9, Table 2-2: Stack is almost complete, not complete

Page 10, Sect. 3.3: The document may benefit from including a discussion of BNL's location relative to the Pine Barrens or discussion of natural vegetation types present at BNL

Page 11, LUCMP: Has there been a LUCMP update since 2018? EPA received a LUIC evaluation document in February 2021

Page 13, OUI Groundwater: Clarify whether VOC contamination has migrated beyond the OU boundary or the BNL boundary

Page 15: The summary under OU VIII indicates that the source of PFAS is AFFF use. Is this the only source? Were other potential sources identified and evaluated? Please add a brief description of the scope of the PFAS investigation and the justification. In addition, if there are potentially other sources of PFAS, please comment, or explain prioritization decisions leading to the focus on AFFF.

Page 26 – USTs: Suggest providing additional language regarding why no additional remedial actions are needed for the USTSs.

Page 29 Table 4-1: minor typos - misspelled 'temporary' and 'operating'

Page 31, Page 32, OU6: "The updated data indicate that system modifications will be required to reduce the cleanup timeframe and to address newly observed deep contamination." Will the proposed system modifications result in an ESD or RODA?

Page 33, Bullet Five: Stormwater is misspelled

Page 33, HFBR: The document states that the ROD requires the actions to be completed by 2020; however, an extension was granted, which should be clarified.

Page 36: The text indicates issues associated with access agreements for the six groundwater treatment systems off of BNL property. It would be helpful to provide information regarding how this will be addressed or where additional information on this issue can be found in the FYR. Additionally, there is confusion as to the number of agreements. There appears to be a seventh agreement with a conveyance provision. What is the significance of this?

Page 44, Landfills, first paragraph: The text says "... There were no detections of soil gas in any ..." Which chemicals are being referred to? What is meant by soil gas in this section?

Page 52, Operable Unit VI: The document notes that two permanent monitoring wells were installed in October 2020. Are data available for the monitoring wells so far?

Section 7: IRIS Updates: Suggest including language to indicate that future updates to the IRIS files and associated toxicity values will be evaluated in the next FYR. Also provide a link to the section in Attachment 5 where updates to toxicity values were identified.

Section 7: Changes in Exposure Pathways, Toxicity and Other Contaminant Characteristics, and Risk Assessment Methods: It would be helpful in this section to refer the reader to Attachment 5, page 249 for more detailed information on specific changes in the default exposure assumptions that do not significantly change the remediation levels.

Page 60, OU I: Ecological considerations should be included in Question B

Page 74, OU V: The text references a general advisory against fish consumption for New York State Waters. The text on page 249 includes more specific language regarding surveys and the exposure assumptions. It is important to consider if there are any site-specific surveys in this area the may reflect local consumption patterns, and this information needs to be included in the text. In addition, the size of the fish found in this area appear to be small based on the description of the ecological sampling results. Information regarding the size of the fish found during the ecological sampling could be discussed as an uncertainty and be included in the text.

Page 79, Operable Unit VIII: EPA feels this level of PFAS and 1,4-dioxane discussion is unnecessary for the document, given that there are no remedies associated with these chemicals. Since there is no remedy yet, mentioning it as a concern elsewhere in the document is sufficient.

Page 81: there is a definitive statement that PFAS are not volatile. This is not the case for all PFAS, so suggest it be revised to say, “PFOA and PFOS, the primary PFAS detected in groundwater, are not considered volatile.”

Page 83, BGRR Implementation of Land Use and Institutional Controls and Other Measures: Is there a plan to transfer the BGRR property? Check with EPA as to regulations when this becomes a reality.

Page 84, Soil Cleanup levels for radionuclides: EPA requests that BNL conduct a calculation using the PRG calculator vs. RESRAD, so that we have the analysis on record.

Page 95: While the need to carry out the TCRA for PFAS source areas is listed as an issue/recommendation, there is no mention of the need to complete the RI/FS, and ROD(s). Please include as an issue the need to complete the investigation of PFAS, with the recommendation being to complete the RI/FS and any RODs, as needed. Include a timeline for these projects.

Page 96, OUIII: EPA considers this short-term protective since exposure pathways are being controlled.

Page 97, OU VI: Is continued monitoring needed to verify protectiveness?

Page 98: The comprehensive protectiveness statement presented on page 98 should be removed. These are only needed for construction complete sites. The OU by OU protectiveness statements and analysis prior to the statement is sufficient for this site.

Page 99, Next Review: The trigger for this Five Year Review is the date on which EPA signed the last protectiveness letter (8/9/2016) and the next one would be five years from the date we issue our protectiveness letter (8/6/2021), not necessarily when the FYR is issued.

Risk Information in Attachment 5: It would be helpful to link the discussions in the text specifically to the section in Attachment 5 where the information can be found to assist the reader. An introductory statement regarding Attachment 5 would be helpful.